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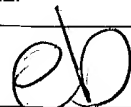
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/814,277	03/21/2001	Toshihiko Hanamachi	6946-10	3964
20575	7590	07/13/2004		
MARGER JOHNSON & MCCOLLOM PC 1030 SW MORRISON STREET PORTLAND, OR 97205			EXAMINER ZERVIGON, RUDY	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)	
09/814,277	HANAMACHI ET AL.	
Examiner	Art Unit	
Rudy Zervigon	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 25, 2004 has been entered.

Claim Rejections - 35 USC § 102/103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3, 5, 7, 10, and 18 are rejected under 35 U.S.C. 102(b) as anticipated by McMillin et al (USPat. 5,835,334) or, in the alternative, under 35 U.S.C. 103(a) as obvious over McMillin et al (USPat. 5,835,334). McMillin teaches a heater device (Figure 1) including a ceramic ("anodized aluminum", column 4, lines 10-15) heater (2, column 5, lines 35-50) defining a heating surface. McMillin further teaches a detachable (column 4, lines 52-55) ceramic plate of aluminum nitride or alumina (1,1c, column 4, lines 20-25, 33-39; alumina – "Al₂O₃") that is placed on the heating surface (Figure 1), and in turn supports an object (4) to be heated. McMillin further teaches a radio frequency electrode (10, Figure 1) buried in the ceramic heater.

Although McMillin teaches that his ceramic plate is detachable (column 4, lines 52-55 – fastened or not fastened) suggesting anticipation, in the alternative:

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to maintain McMillin's ceramic plate unfastened.

Motivation to maintain McMillin's ceramic plate unfastened is for faster servicing of the respective components.

4. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over McMillin et al (USPat. 5,835,334). McMillin is discussed above. McMillin further teaches an electrode (1) for RF power (24) buried in the ceramic plate (1,1c; Figure 1). McMillin does teach the thickness of the ceramic dielectric layer 1c as being within 5-50 μ m (column 4, line 38). McMillin does not teach that the ceramic plate has a thickness of less than 2mm or less than 5mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the thickness of the ceramic plate.

Motivation to optimize the thickness of the ceramic plate is to optimize the electrostatic clamping force (column 1, lines 35-38). Further, it is well established that changes in apparatus dimensions are within the level of ordinary skill in the art. (Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04)

5. Claims 8, 9, and 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over McMillin et al (USPat. 5,835,334) in view of Beinglass et al (USPat. 5,645,646). McMillin is discussed above. McMillin does not discuss an annular low wall surrounding the supporting surface, nor does McMillin teach a process vessel housing the heater and ceramic plate.

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Beinglass teaches a similar chuck (20; Figures 1-3,6) including an annular low wall surrounding the supporting surface (Figure 2,3,6) and a process vessel (12) housing the chuck that is

It would have been obvious to one of ordinary skill in the art at the time the invention was made to increase the height of a McMillin annular low wall to surround the supporting surface and include this structure in a process vessel housing as taught by Beinglass.

Motivation to increase the height of McMillin's annular low wall to surround the supporting surface and include this structure in a process vessel housing as taught by Beinglass is to provide for uniform heating (column 1, lines 41-51). Motivation to include the support of McMillin in the chamber of Beinglass is to use the chuck as designed by McMillin in a processing apparatus.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over McMillin et al (USPat. 5,835,334) and Beinglass et al (USPat. 5,645,646) in view of Nolet et al (USPat. 5,098,741). McMillin and Beinglass are discussed above. McMillin and Beinglass do not teach Beinglass's process vessel is controlled within a pressure of between 0.5torr and 10torr. Nolet teaches a low pressure CVD reactor (14; Figure 1) that is maintained below 25 Torr (column 3; lines 5-20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to maintain McMillin and Beinglass's CVD reactor within a pressure of between 0.5torr and 10torr as taught by Nolet.

Motivation to maintain McMillin and Beinglass's CVD reactor within a pressure of between 0.5torr and 10torr as taught by Nolet is for

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Response to Arguments

7. Applicant's arguments filed March 19, 2004 have been fully considered but they are not persuasive.

8. Applicant states:

“

Independent claims 1 and 9 both recite that the ceramic plate covering an upper heating surface is not fastened to the heating surface. In this Action, the examiner simply asserts, without citation to any prior art teaching that it would be obvious not to fasten McMillin's ceramic plate to McMillin's ceramic heater to provide servicing of McMillin's ceramic heater. Applicant traverses this rejection on several grounds. First, it is unsupported by any teaching in the prior art. Second, it is contrary to McMillin's teachings and in fact would be disruptive of operation of McMillin's structure.

“

In response, the Examiner reiterates the specific citation in his rejection:

“

McMillin further teaches a detachable (column 4, lines 52-55) ceramic plate of aluminum nitride or alumina (1,1c, column 4, lines 20-25, 33-39; alumina – “Al₂O₃”) that is placed on the heating surface (Figure 1), and in turn supports an object (4) to be heated.

“

As such, because McMillin teaches a detachable ceramic plate, anticipation is considered. However, in the alternative, obviousness in view of the teachings of McMillin is asserted above.

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9. The Examiner disagrees with applicant's argument that McMillan's apparatus would leak coolant gas if McMillin's detachable (column 4, lines 52-55) ceramic plate of aluminum nitride is not fastened. McMillin, in column 4, lines 52-64, states that o-rings 9 are optional suggesting sufficient coolant gas containment even without the o-rings. It is further argued that McMillan's control apparatus (31; Figure 1; column 5, line 64 – column 6, line 18) would maintain a desired back pressure based on processing conditions (column 6, lines 18-36) compared to the prevailing processing gas pressure. Further, and most importantly, the very channels (6,6a; Figure 1) within which McMillin's coolant fluid is circulated are shown in Figure 1 to be cavities within one piece of McMillin's apparatus – item 1, Figure 1 of McMillin. As such, coolant gas would not escape if McMillin operates his chuck with unfastened components.

10. Applicant states:

“

Further, in McMillin, the electrode cap and the lower electrode define therebetween channels 6 and 6a to supply a path for a circulating liquid. Therefore, if the electrode cap and the lower electrode were not fastened to each other, the channels would be incomplete, resulting in undesirable leak of the liquid.

“

The Examiner disagrees and simply identifies McMillin's channels (6,6a; Figure 1) within which McMillin's coolant fluid is circulated are shown in Figure 1 to be cavities within one piece, not two pieces as Applicant suggests, of McMillin's apparatus – item 1, Figure 1 of McMillin. As such, coolant gas would not escape if McMillin operates his chuck with unfastened components.

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11. Applicant's arguments with respect to claim 19 is moot in the view of the new grounds of rejection.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (571) 272-1439.

Rudy Zervigon
7/9/14